

Practitioner's Docket No. HIT1P021/HSJ920030069US1

PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re application of: LEE et al.

MAR 21 2006

Application No.: 10/687,284

Group No.: 2652

Filed: October 15, 2003

Examiner: Allen T. CAO

For: WRITE HEAD DESIGN WITH IMPROVED BUMP TO CONTROL WRITE SATURATION

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

DECLARATION OF PRIOR INVENTION IN THE UNITED STATES  
OR IN A NAFTA OR WTO MEMBER COUNTRY  
TO OVERCOME CITED PATENT OR PUBLICATION (37 C.F.R. § 1.131)

## PURPOSE OF DECLARATION

1. This declaration is to establish completion of the invention of this application in the United States at a date prior to April 1, 2003, that is the effective date of the prior art publication that was cited by the Examiner.
2. The persons making this declaration are the inventors.

## CERTIFICATION UNDER 37 C.F.R. §§ 1.8(a) and 1.10\*

*(When using Express Mail, the Express Mail label number is mandatory;  
Express Mail certification is optional.)*

I hereby certify that, on the date shown below, this correspondence is being:

## MAILING

\_ deposited with the United States Postal Service in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

37 C.F.R. § 1.8(a)

\_ with sufficient postage as first class mail.

37 C.F.R. § 1.10\*

\_ as "Express Mail Post Office to Addressee"  
Mailing Label No. \_\_\_\_\_ (mandatory)

## TRANSMISSION

✓ facsimile transmitted to the Patent and Trademark Office, (703) 571-273-8300

April Skormand  
SignatureDate: 3/21/2006April Skormand  
(type or print name of person certifying)

\* Only the date of filing (' 1.6) will be the date used in a patent term adjustment calculation, although the date on any certificate of mailing or transmission under ' 1.8 continues to be taken into account in determining timeliness. See ' 1.703(f). Consider "Express Mail Post Office to Addressee" (' 1.10) or facsimile transmission (' 1.6(d)) for the reply to be accorded the earliest possible filing date for patent term adjustment calculations.

Declaration of Prior Invention in the United States or in a NAFTA or WTO Member Country to Overcome Cited Patent or Publication—  
37 C.F.R. section 1.131—page 1 of 3

### FACTS AND DOCUMENTARY EVIDENCE

3. As evidence of the date of conception of the invention of this application, the following attached documents and/or models are submitted as evidence:

STATEMENT: I hereby state that conception of the invention in the above-identified patent application was made prior to April 1, 2003, as supported by Exhibit A. Exhibit A, dated October 14, 2002, shows a copy of the disclosure submitted by the inventors. I state that the concepts and features described in Exhibit A were conceived and discussed by the inventors prior to April 1, 2003.

EXHIBIT A: copy of an invention disclosure printed October 14, 2002.

Exhibit A demonstrates that the subject matter of claims 1-11, 13-22 and 24-25 were in the inventors' possession at least as early as October 14, 2002.

All elements of claims 1-6, 13, 14, 15-17, 19, 24 are shown in Option A and related description.

All elements of claims 5, 7-11, 13-15, 18, 20-22, 24 are shown in Option B and related description.

Regarding claim 25, the design was intended for use in a magnetic storage system of a type having magnetic media, a head as shown in Exhibit A for reading and writing to the magnetic media, a slider for supporting the head, and a control unit for controlling operation of the head. Accordingly, the elements of claim 25 are inherently present in the disclosure of Exhibit A.

From these Exhibits and statement, it can be seen that the invention claimed in the noted claims was made prior to April 1, 2003.

### DILIGENCE

4. It is hereby declared that Applicants acted diligently up to reduction of practice or the filing date of the present patent application.

### TIME OF PRESENTATION OF THE DECLARATION

5. This declaration is submitted prior to final rejection, or with a first or supplementary first reply after a final rejection for the purpose of overcoming a new ground of rejection or requirement made by the examiner, in which case the declaration is considered timely and should be considered. See MPEP 715.09(c).

## DECLARATION

## 6. As a person signing below:

I hereby declare that the documents attached hereto disclose the subject matter of currently pending claims 1-11, 13-22 and 24-25 of the subject patent application. I also declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

## SIGNATURE(S)

Typewritten Full Name of  
Sole or First Inventor: Edward Hin Pong Lee Citizenship: USA  
Inventor's signature: Edward Hin Pong Lee Date of Signature: 3/14/06  
Residence: (City) San Jose (State/Country) CA /USA  
Post Office Address: 5838 Vargas Court, San Jose, California 95120

Typewritten Full Name of  
Joint or Second Inventor: Katalin Pentek Citizenship: Romania US *K.P.*  
Inventor's signature: Katalin Pentek Date of Signature: 3/8/06  
Residence: (City) San Jose (State/Country) CA /USA  
Post Office Address: 1437 Corte de Rosa, San Jose, California 95120

Typewritten Full Name of  
Joint or Third Inventor: Yong Shen Citizenship: USA  
Inventor's signature: \_\_\_\_\_ Date of Signature: \_\_\_\_\_  
Residence: (City) Saratoga (State/Country) CA /USA  
Post Office Address: 12298 Golera Avenue, Saratoga, California 95070

Typewritten Full Name of  
Joint or Fourth Inventor: Sue Siyang Zhang Citizenship: USA  
Inventor's signature: Sue Siyang Zhang Date of Signature: 3/8/06  
Residence: (City) Saratoga (State/Country) CA /USA  
Post Office Address: 12298 Golera Avenue, Saratoga, California 95070

Declaration of Prior Invention in the United States or in a NAFTA or WTO Member Country to Overcome Cited Patent or Publication—  
37 C.F.R. section 1.131—page 3 of 3

**DECLARATION****6. As a person signing below:**

I hereby declare that the documents attached hereto disclose the subject matter of currently pending claims 1-11, 13-22 and 24-25 of the subject patent application. I also declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**SIGNATURE(S)**

Typewritten Full Name of  
Sole or First Inventor: Edward Hin Pong Lee Citizenship: USA  
Inventor's signature: \_\_\_\_\_ Date of Signature: \_\_\_\_\_  
Residence: (City) San Jose (State/Country) CA /USA  
Post Office Address: 5838 Vargas Court, San Jose, California 95120

Typewritten Full Name of  
Joint or Second Inventor: Katalin Pentek Citizenship: Romania  
Inventor's signature: \_\_\_\_\_ Date of Signature: \_\_\_\_\_  
Residence: (City) San Jose (State/Country) CA /USA  
Post Office Address: 1437 Corte de Rosa, San Jose, California 95120

Typewritten Full Name of  
Joint or Third Inventor: Yong Shen Citizenship: USA  
Inventor's signature: Ysh Date of Signature: March 14, 2006  
Residence: (City) Saratoga (State/Country) CA /USA  
Post Office Address: 12298 Goleta Avenue, Saratoga, California 95070

Typewritten Full Name of  
Joint or Fourth Inventor: Sue Siyang Zhang Citizenship: USA  
Inventor's signature: \_\_\_\_\_ Date of Signature: \_\_\_\_\_  
Residence: (City) Saratoga (State/Country) CA /USA  
Post Office Address: 12298 Goleta Avenue, Saratoga, California 95070

Declaration of Prior Invention in the United States or in a NAFTA or WTO Member Country to Overcome Cited Patent or Publication—  
37 C.F.R. section 1.131—page 3 of 3

SJQB-2002-0284 Stitched writer des with Al2O3 bump to control write saturation - continu

Exhibit A

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.  
P1 defined throat, sunken coil and flat P2 are key design features in IBM Bionic design. We need to reduce throat height to improve write efficiency as track width/write gap length decreases with future high density product. The challenge has been to control P1 saturation without compromising saturation.

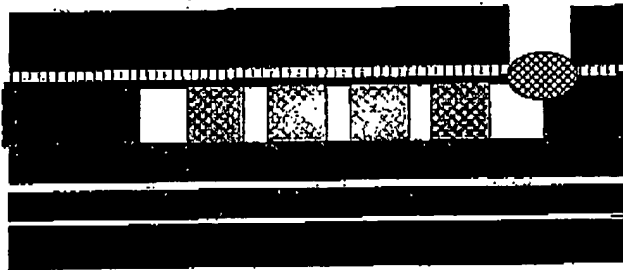
This invention teaches a method to reduce flux from P2 to P1 so that the optimal writing performance can be achieved at short throat height.

2. How does the invention solve the problem or achieve an advantage, (a description of "the invention", including figures inline as appropriate)?

Scheme a

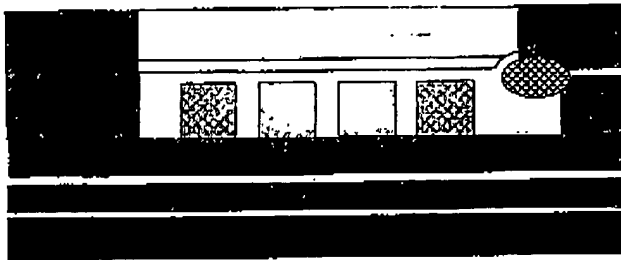
Option A: Define P2 bump before write gap

P1 CMP  
CMP stopper (Ta or C)  
Photo  
Ion mill  
Bump formation deposition



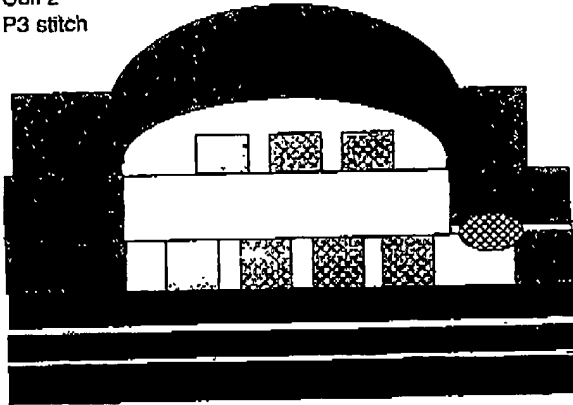
Option A:

Deposit write gap  
Define P2 layer  
Planarization



SJ08-2002-0284 Stetched writer de With Al<sub>2</sub>O<sub>3</sub> bump to control write saturation - contin

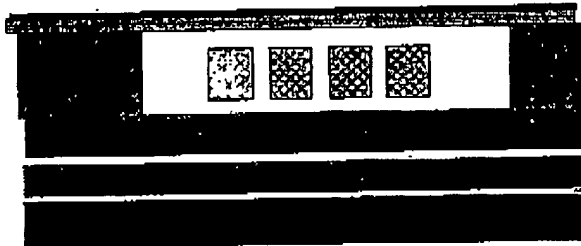
Option A:  
Coil 2  
P3 stitch



Scheme B

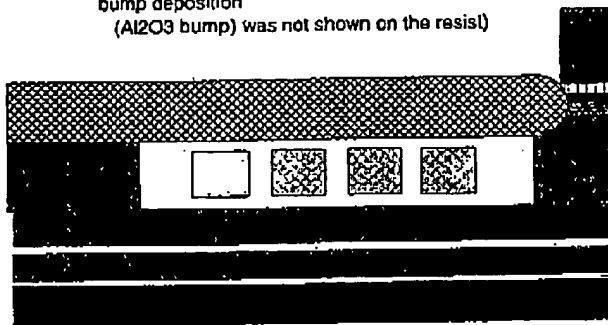
Option B: Define P2 bump after write gap

P1 CMP  
Lamination gap  
CMP stopper (Ta or C)  
Photo  
Ion mill  
Bump formation fill



Option B: Define P2 bump after write gap

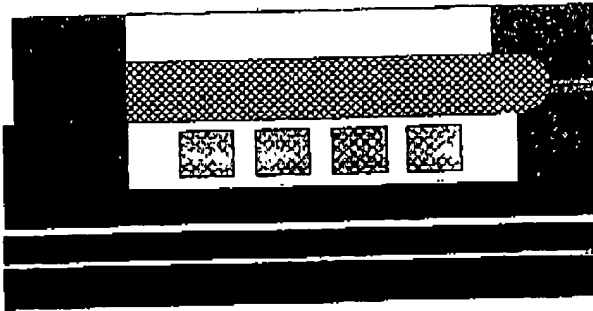
Photo  
Ion mill  
Trim  
bump deposition  
(Al<sub>2</sub>O<sub>3</sub> bump) was not shown on the resist)



SJ08-2002-0264 Statched writer de with Al2O3 bump to control write saturation - contin

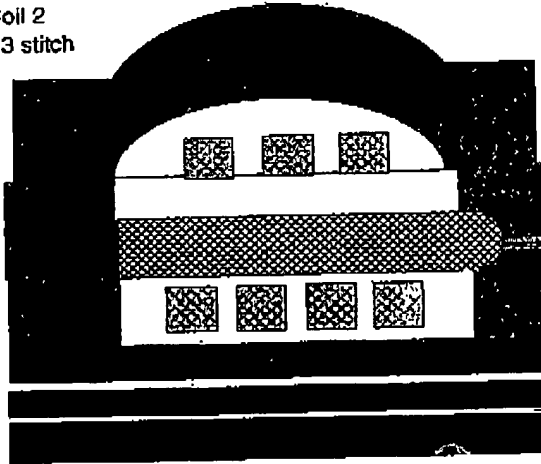
Option B: Define P2 bump after write gap

P2 formation  
P2 planarization



Option B:

Coil 2  
P3 stitch



3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?  
no

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.  
no

**\*Critical Questions (Questions 1-9 must be answered in English)**

**\*Question 1**

On what date was the invention workable? 04/13/2002 Please format the date as MM/DD/YYYY

**STATEMENT BY ATTORNEY OF RECORD ESTABLISHING COMMON  
OWNERSHIP OF THE PRESENT APPLICATION AND U.S. PATENT NO.  
6,741,429 TO BAGLIN AT TIME OF INVENTION**

Dear Examiner:

The present application having serial no. 10/687,284 to Lee et al. and U.S. Patent No. 6,542,331 to Chang et al. were, at the time the invention of the present application was made, owned by and/or under subject to an obligation of assignment to the same entity, International Business Machines Corporation.

Respectfully submitted,



Dominic Kotab, Attorney of Record  
Reg. No. 42,762

HIT1P021/HSJ920030069US1

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# **COPY OF PATENT ASSIGNMENT ABSTRACT OF TITLE FOR U.S. PATENT NO. 6,542,331 TO CHANG ET AL.**

USPTO Assignments on the Web - Microsoft Internet Explorer			
United States Patent and Trademark Office			
Assignments on the Web > Patent Query			
<b>Patent Assignment Abstract of Title</b>			
<i>NOTE: Results display only for issued patents and published applications. For pending or abandoned applications please consult USPTO staff.</i>			
Total Assignments: 3	Patent #: 6542331	Issue Dt: 04/01/2003	Application #: 09546576
	Inventors: Thomas Young Chang, Terence Tin-Lok Lam, Edward Hui-Pong Lee, Samuel Wonder Yuan		Filing Dt: 04/10/2000
	Title: MAGNETIC HEAD HAVING WRITE HEAD WITH DOUBLE SPLIT YOKE		
Assignments: 1	Reel/Frame: 010007/0302	Recorded: 04/10/2000	Pages: 2
Conveyance:	ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).		
Assignors:	CHANG, THOMAS YOUNG	Exec Dt: 04/01/2000	
	LAM, TERENCE TIN-LOK	Exec Dt: 03/20/2000	
	LEE, EDWARD HUI-PONG	Exec Dt: 03/20/2000	
	YUAN, SAMUEL WONDER	Exec Dt: 03/20/2000	
Assignee:	INTERNATIONAL BUSINESS MACHINES CORPORATION NEW ORCHARD ROAD ARMONK, NEW YORK 10504		
Correspondent:	OPPENHEIMER WOLFF & DONNELLY LLP ROBERT O. GULLLOT 3373 HILLVIEW AVE. SUITE 200 PALO ALTO, CA 94304-1204		
Assignments: 2	Reel/Frame: 014871/0450	Recorded: 07/19/2004	Pages: 11
Conveyance:	CHANGE OF NAME (SEE DOCUMENT FOR DETAILS).		
Assignor:	MARIANA HDD B.V.	Exec Dt: 12/31/2002	
Assignee:	HITACHI GLOBAL STORAGE TECHNOLOGIES NETHERLANDS B.V. LOCATELLIKADE 1 AMSTERDAM, NETHERLANDS 1076 AZ		
Correspondent:	MORRISON & FOERSTER LLP GENEVIEVE S. BURCH 425 MARKET STREET SAN FRANCISCO, CA 94105-2482		
Assignments: 3	Reel/Frame: 014871/0746	Recorded: 07/19/2004	Pages: 7
Conveyance:	ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).		
Assignor:	INTERNATIONAL BUSINESS MACHINES CORPORATION	Exec Dt: 12/31/2002	
Assignee:	MARIANA HDD B.V. JOHAN HUIZINGALAAN 765 AMSTERDAM, NETHERLANDS 1066VH		
Correspondent:	MORRISON & FOERSTER LLP GENEVIEVE S. BURCH 425 MARKET STREET SAN FRANCISCO, CALIFORNIA 94105-2482		
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